



Active Arctic – Digital environments and solutions supporting the well-being and business of sparsely populated areas

Background

The welfare industry is undergoing constant change due to the new welfare area reform and the necessity for the digitization of SMEs, which has been accelerated by the corona pandemic. This necessitates new knowledge, investments, networking, and coordinated services to ensure that SMEs remain at the forefront of the digitalization wave. The smart specialization strategy of Lapland province supports the sustainable growth of the region's key industries and the innovation capabilities of local companies. Priorities for Lapland's smart specialization include well-being and experiential services derived from nature, as well as technology as a catalyst for sustainable production and services. These priorities are in addition to fostering the circular economy and renewable energy.

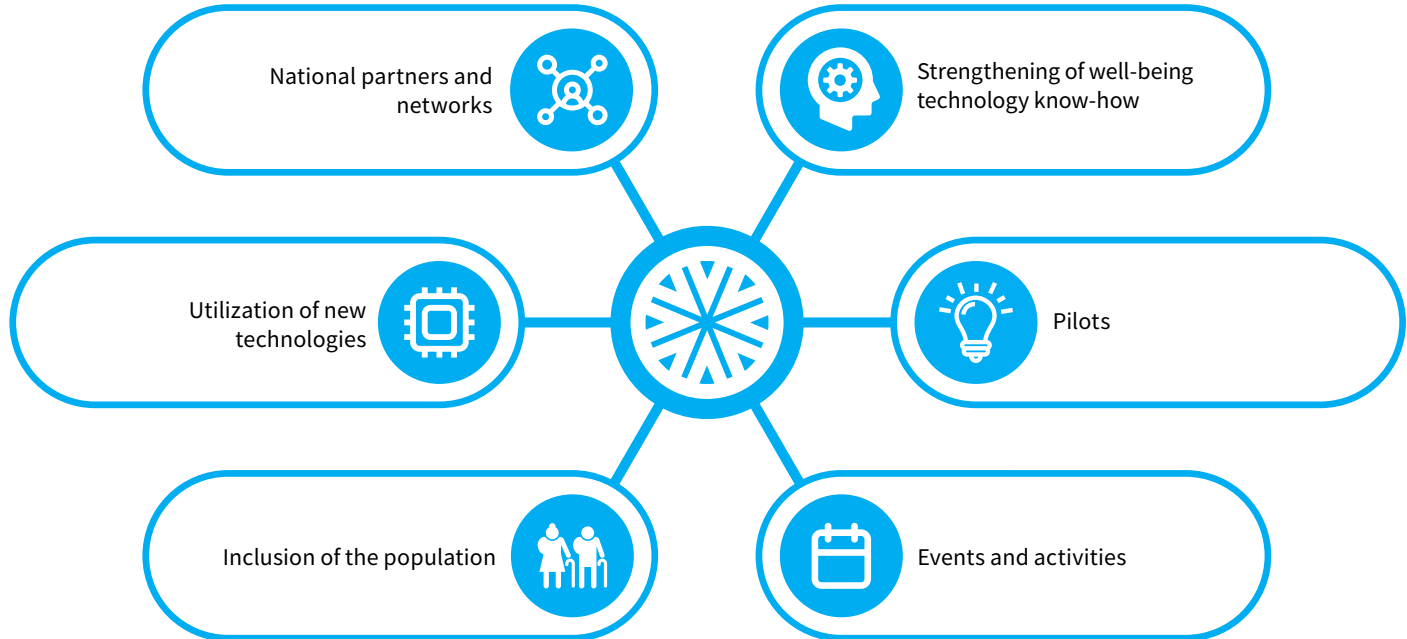
Long distances, limited accessibility, an aging population, social well-being, nature, and physical activity are defining characteristics that shape the operational landscape in Lapland. It is crucial to consider these unique features when developing new business models. Lapland has an opportunity to specialize and distinguish itself, potentially becoming a model region for addressing the challenges of remote locations by offering digital solutions that support well-being even in isolated areas.

The workshops within the Active Arctic project have identified the most critical needs in the welfare sector. These needs have formed the basis for identifying appropriate technologies and digital solutions.

The focus has been on employing service design methods to collaboratively develop a digital service pathway. Cooperation, skill identification, and leveraging strengths are all regarded as pivotal aspects in the development of the operational environment, as well as in the creation of novel innovations and business models.

The Active Arctic project has played a pivotal role in facilitating the adoption of digital services among welfare SMEs in Lapland, consequently raising awareness. The piloted Digital Innovation Hubs (DIH) ecosystem model, an outcome of the project, takes into consideration the collaborative interactions among various stakeholders in the region, delineating their respective roles. This model has the potential to pave the way for the emergence of new digital business models within the welfare sector. Events such as the Wellbeing Technology Fairs organized within the region and other project-related activities have contributed to an enhanced understanding of novel digital and technological solutions.

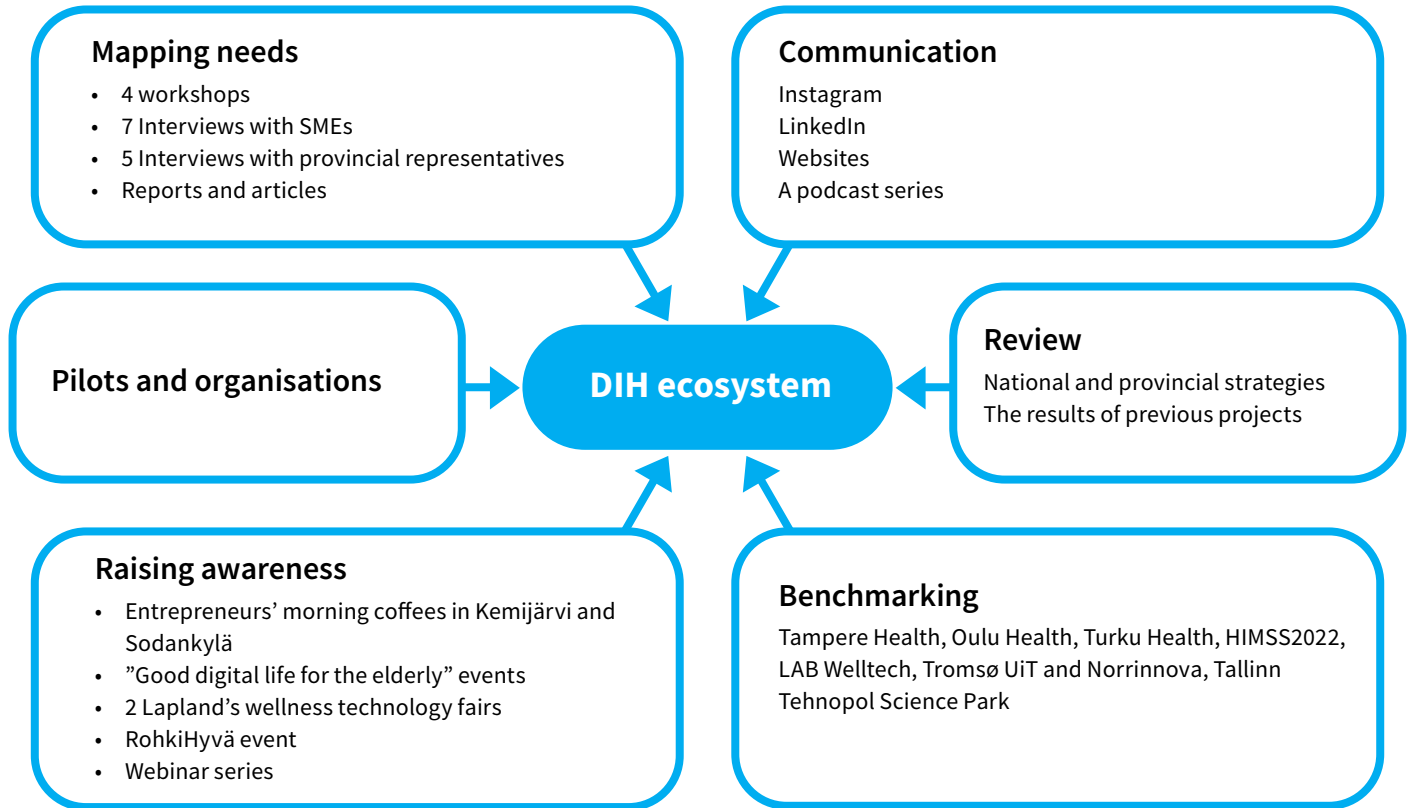
Focus map



Collaborators



Process



Existing technologies and strengths

Lapland's public sector healthcare services show a strong background, experience and know-how in distance management. However, technologies find more extensive application in other sectors, such as tourism and manufacturing, than in the welfare sector. Despite this, Lapland possesses both technological and social understanding relevant to the region's unique challenges. The region has accumulated expertise in various areas, including the support of elderly living at home, remote home care, and the facilitation of diverse virtual events that foster connections among people. In the field of well-being and health, technological and digital solutions are predominantly prevalent within the public sector rather than the business sector. Nevertheless, the potential for integrating digital and technological innovations into services offered by companies is considerable. Such integration can serve as a catalyst for vitality and innovation, particularly within the context of a sparsely populated region like Lapland.

Lapland has a robust expertise in virtual reality (VR), as demonstrated by the DigiStep project in 2018ⁱ. This VR expertise extends to encompass augmented reality (AR) and extended reality (XR) technologies. There is a prospect to further develop this expertise, potentially positioning it as the flagship technology of the region. Notably, virtual reality can also be harnessed to enhance the accessibility of welfare services. Lapland's universities have explored solutions involving 3D printing technology, automation, and robotics. However, expertise related to data utilization is an area that still requires augmentation from other regions. In its optimal manifestation, this augmentation could foster collaboration between municipalities.

ⁱ Lapin DigiStep -hanke. (2018). Lapin digitalisaatio. Lapin DigiStep -hankkeen alkukartoitus. Oxford Research.

Micro and SME businesses in the welfare sector exhibit a low proficiency in digital skills. Introducing novel technologies and advancing services necessitates external assistance. Accessible spaces for technology familiarization are essential before substantial financial commitments.

Alongside technological prowess, acknowledging social innovations is prudent, and Lapland holds promising potential in this realm. Notable instances include existing social innovations like "Hyvinvointivähete"ⁱⁱ and "Onni-auto."ⁱⁱⁱ



Image: fauxels (Pexels)

ⁱⁱ hyvinvointilahete.fi

ⁱⁱⁱ lapinamk.fi/fi/Yrityksille-ja-yhteisoille/Kehittamisymparistot/ONNI-AUTO

The DIH Roadmap of Lapland's well-being



We are pioneers in merging nature and digital technologies for well-being innovations.

1. Supporting the digital transition of micro and SME businesses.
2. Digital transition in the well-being sector (Industry 4.0 technologies)
3. Applying technology to Arctic conditions



0 The needs of Lapland and the overall picture

- Ensuring well-being services for sparsely populated areas.
- Supporting preventive healthcare with digital technology.
- Applying digital technology to Lapland's Arctic conditions.
- Enhancing digital skills of small and medium-sized businesses in the field.
- Improving the visibility of Research, Development, and Innovation (RDI) activities.

1 Strengths of Lapland region

- LAPHA's experience in developing remote well-being services, Lapland University of Applied Sciences as a technology implementer, and Lapland University as a technology designer.
- Social work, greencare, physical activity and world-class sports, well-being management.
- The region's expertise combined with digital and technological solutions creates opportunities to address local needs and challenges.
- Lapland's nature as a Living Lab environment.

2 Proposal for DIH-operating model

- Technological emphasis: VR and XR technologies, for which there is expertise in the region.
- A cooperative in which members are owner-customers and decision-making is democratic.
- Owner-customers include RDI actors, well-being and social care businesses, the public sector, and organizations. They utilize the cooperative's services and participate in its operations.
- Basic services are funded through the organization's core funds. Funding is also derived from membership fees.

3 Definition of DIH services

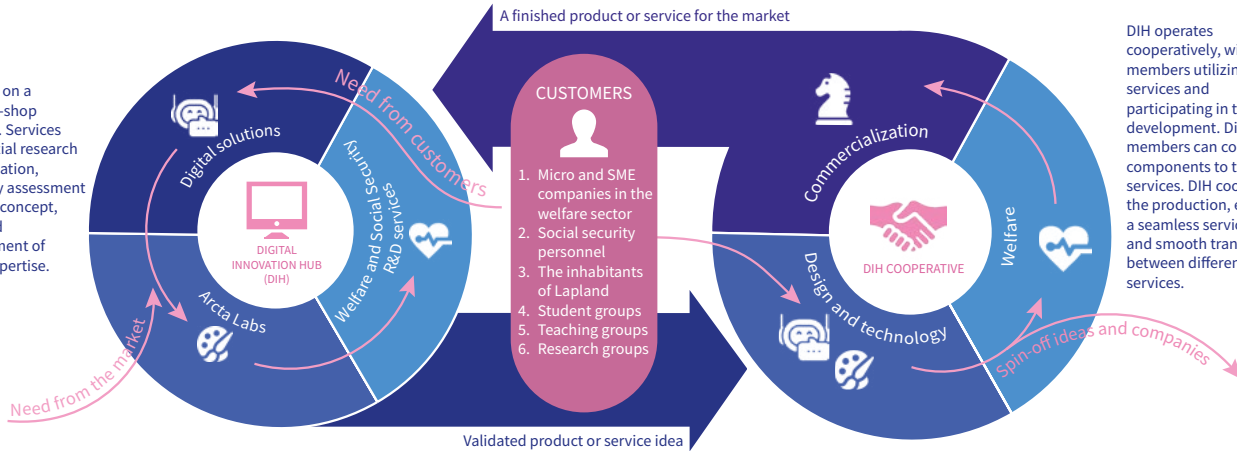
- The DIH provides well-being sector micro and small businesses with digital transition support services to enhance competitiveness, following a one-stop-shop approach.
- The services encompass digital transition, innovation, commercialization, competence, and entrepreneurship support, along with Test Before Invest services.
- These services cover initial research and validation, feasibility assessment (PoC), and commercialization support.

4 DIH activity organization

- Initiating with grant funding, followed by assembling business members. The goal is to increase membership annually.
- A shared strategy is developed for the DIH, which is updated at regular intervals.
- Two member events and two customer satisfaction surveys conducted annually, in addition to basic services.
- Developing a distinct brand, visual identity, and website for the DIH.
- Streamlining the existing RDI infrastructure according to members' needs.

DIH ecosystem map

Operates on a one-stop-shop principle. Services cover initial research and validation, feasibility assessment (proof of concept, PoC), and development of digital expertise.



DIH operates cooperatively, with members utilizing its services and participating in their development. Different members can contribute components to the services. DIH coordinates the production, ensuring a seamless service path and smooth transitions between different services.

DIGITAL INNOVATION HUB (DIH)

- Airut
- Sinco
- XR Lab
- Fablab
- MuTe Lab
- Simulaatiosairaala Aurora
- Simulaatiosairaala Sky
- Aistihuone
- Kotiympäristö
- Arctic Work Sport Lab
- Frostbit
- XBit Tornio
- IoT/IoRT Lab



ARCTIA LABS



WELLNESS AND HEALTH SECTOR RESEARCH SERVICES



DIGITAL SOLUTIONS

- Tech transfer
- Test before invest
- Innovation management and entrepreneurship

- Competence development
- Ecosystem development

- Funding
- IPR and Legal Aid
- Commercialization

DIH-PALVELUEKOSYSTEEMI

- Digipolis
- Arctic Design Capital
- LUC Group
- IT micro and SME companies

- Natural Resources Center
- Arctic Sport Cluster
- ClusSport
- Micro and SME companies in the welfare sector
- Tourism Institute (MTI)
- Anticipation's well-being cluster
- Tourism and security cluster

- Regional state Administrative Agency
- MicroEntre Oulu
- The Union of Lapland
- ELY Center of Lapland
- Business Rovaniemi



DESIGN AND TECHNOLOGY



WELFARE



COMMERCIALIZATION

SWOT analysis of the welfare industry DIH

Strengths

- Promoting digitalization among regional stakeholders
- Unique nature
- Arctic expertise and environment
- Proficiency in physical activity and social work
- Cross-border collaboration
- Competence in VR and XR

Weaknesses

- DIH is a new concept
- Ensuring funding
- Lack of collaboration
- Limited number of well-being technology companies

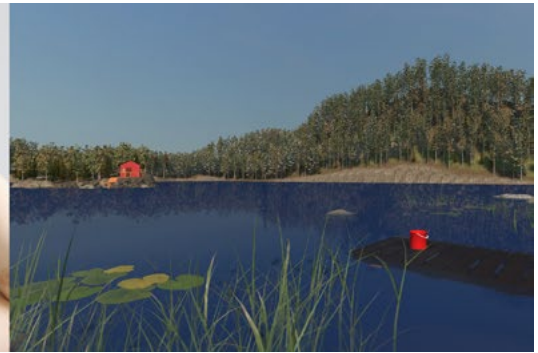
SWOT

Opportunities

- Nordic collaboration
- Expertise in new technologies
- Universities and other research institutions
- Existing networks
- Natural resources
- Well-being experiential services utilizing new technology

Threats

- Workforce availability
- Attracting external experts to the region
- Attitude towards new technologies
- Lack of resources
- Companies not willing to pay for services
- Stakeholder commitment



“Metsänkävijä” VR application

Virtual reality offers experiences to individuals who, for various reasons, would otherwise be unable to have them. In the “Metsänkävijä” (Forest visitor) VR application, users can experience the calming effects of a forest and lake landscape along with its accompanying sounds. Additionally, based on user requests, forest animals have been added to the application. As a rehabilitative element, users are able to virtually pick mushrooms. The idea for mushroom or berry picking was brought by caregiving experts.

The added value of virtual reality, regardless of the field, lies in the ability to use different environments, such as educational settings, regardless of time and location. It is likely that in the future, virtual reality solutions will become more prevalent, especially in distance education and rehabilitation.



Weltti – well-being platform

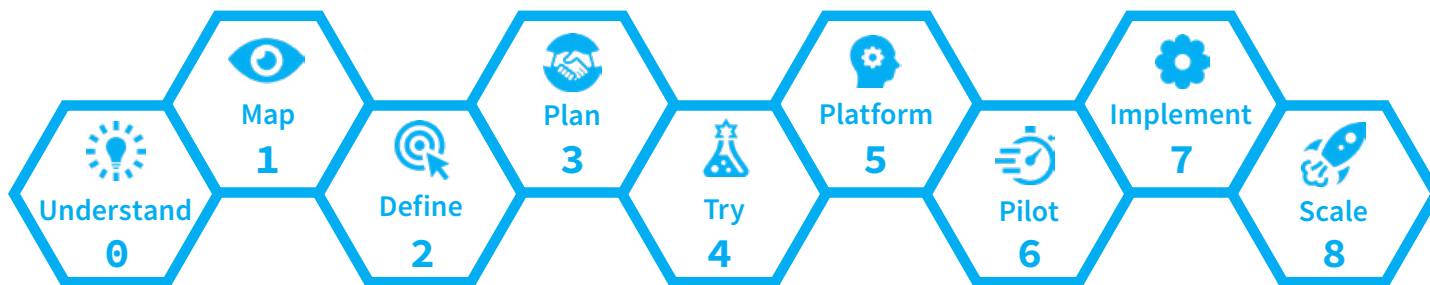
In the Active Arctic project, a prototype for the platform named "Weltti" was designed and developed. This platform brings together over 500 local well-being service providers, micro and small businesses from the Lapland region, representing a diverse range of well-being domains. The platform solution's service offerings encompass areas such as workplace well-being, physical activity, nutrition, mental health, as well as well-being services for the elderly and families, all provided by local small businesses in the field. The purpose of Weltti is to make local well-being services more accessible, thereby enhancing the vitality of the region and increasing the visibility and collaboration of small businesses.

SME digitization

1. Digitize one function at a time.
2. Well-designed is half done — allocate time to the preparation phase.
3. Consider the type of human need that digitization addresses, whether it's yours, your staff's, or your customer's.
4. Technology is a tool for adding value and should support your core business.
5. Avoid fragmented purchases.
6. Collaborative efforts engage, reduce risks, and resistance to change.
7. Rapid experiments reduce development costs and risks.
8. Leverage the strengths of SMEs: their compactness, flexibility, and agility.
9. Utilize and expand collaboration with digital natives and companies producing digital services, consulting firms, public entities, research institutions, universities, development environments, organizations, and projects.
10. Your organization's team can also consist of external actors and function in a decentralized manner.
11. Digital technologies can enhance sales and marketing through new channels and achieve cost efficiency by streamlining processes and automating routines.
12. Digital literacy includes skills such as digital content creation, computational thinking, basic programming skills, and data literacy. These skills can vary significantly among adults.
13. Digital literacy refers to the ability to solve various problems using information technology and within virtual environments.
14. Digital literacy doesn't necessarily require an engineer-level understanding or expertise in new technologies; rather, it entails comprehending the digital operational landscape and functioning within it.



The digital path for an SME



Preparation phase (0-2)

- Understand the benefits and applicability of digital technologies to your business operations.
- Clarify your current level of digital literacy by using tools like a digital maturity test¹.
- Recognize your company's development needs.
- Seek information about available technologies.
- Select a technology suitable for your company's needs and define its application for rapid experimentation.

Trial phase (3-5)

- Define realistic short, medium-term, and long-term goals for elevating the level of digitization.
- Create a plan and strategy to achieve these goals.
- Transform the strategy into project or initiative concepts.
- Prepare for rapid experiments: what, why, who, for whom, how - with whom?
- Execute the experiments, document insights, and integrate them into project concepts.
- Secure necessary funding for projects, convert benefits into monetary value, and assess impacts based on costs, such as their effect on the price of your product or service.
- Allocate resources by collaborating, for instance, with universities.
- Focus on quick wins within a 6-month interval.

Piloting phase (6-8)

- Start the pilot phase incrementally. Monitor the achievement of project objectives and make adjustments as needed. Consider the previously established strategy.
- Gather feedback regularly from various stakeholders and involve them in the process.
- Share best practices and lessons learned.
- Organize support for technology usage to maintain utilization rates and continuous development.
- Identify another area of development and initiate the process anew until you reach the desired level of digital literacy.
- Note that the timeline is often long.

¹ardico.fi/digicap

Conclusions and recommendations

- Micro and small businesses in the well-being sector within the region, as well as other industry stakeholders, require a space to experiment and familiarize themselves with new technology.
- Raising awareness about the potential of new technologies and their utilization in the well-being sector should continue.
- Enhancing digital skills and business acumen for small and medium-sized enterprises (SMEs) should remain a priority. Coordinated and systematic efforts are necessary.
- Increasing anticipatory skills and understanding of trends – new technologies are of today, not just the future.
- Elevating virtual reality to a flagship technology in the region.
- Leveraging the region's inherent strengths and existing technology as a cornerstone for well-being development.
- Elevating the level of digital competence in the well-being sector and regionally, integrating content into educational programs.

Read more: blogi.eoppimispalvelut.fi/activearctic/